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Aviation Maintenance Alerts

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Improve Reliability-Interchange Service Experience

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U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
WASHINGTON, DC 20590

AVIATION MAINTENANCE ALERTS

The Aviation Maintenance Alerts provide a common communication channel through which the aviation community can economically interchange service experience and thereby cooperate in the improvement of aeronautical product durability, reliability, and safety. This publication is prepared from information submitted by those who operate and maintain civil aeronautical products. The contents include items that have been reported as significant, but which have not been evaluated fully by the time the material went to press. As additional facts such as cause and corrective action are identified, the data will be published in subsequent issues of the Alerts. This procedure gives Alerts' readers prompt notice of conditions reported via Malfunction or Defect Reports. Your comments and suggestions for improvement are always welcome. Send to: FAA; ATTN: Designee Standardization Branch (AFS-640); P.O. Box 25082; Oklahoma City, OK 73125-5029.

AIRPLANES

BAE

Bae; Model 31; Jetstream; Engine Combustion Can Crack; ATA 7240

While starting the engines prior to flight, the crew noticed that the number 2 engine started slowly. During flight, the exhaust gas temperature (EGT) split was 100 degrees centigrade between the engines.

At the destination airport, a technician inspected the number 2 engine and found a 6-inch long crack on the combustion can. The crack allowed hot bleed air to leak into the engine nacelle which resulted in diminished engine power. The technician also found dents on the external surface of the combustion can. The submitter gave no explanation for the cause of the crack or the source of the dents.

Part time since overhaul-1,371 hours.

BEECH

Beech; Model E18S; Cockpit Oil Leak; ATA 7930

While conducting an engine run, the technician noticed engine oil dripping onto the cockpit floor behind the instrument panel.

The technician discovered the engine oil pressure gauge line leaking. The line was brittle due to age, and corrosion penetrated the line at several locations.

The cockpit is a very critical area for fluid leaks of any kind and presents a serious safety hazard. Leaks are especially hazardous and prominent in the hidden area behind the instrument panel where close quarters can produce chafing and windshield leaks encourage corrosion. Also, electrical arcing may sever a fluid line and cause a fire.

We encourage maintenance personnel to conduct a diligent inspection of this area at every opportunity.

Part total time not reported.

Beech; Model G18S; Defective Landing Gear; ATA 3230

When the pilot selected the "up" position after takeoff, he heard a loud "rumbling" sound, and the landing gear control circuit breaker popped open. The pilot manually extended the landing gear and made a safe landing.

An inspection disclosed a severely worn brass gear (P/N 404-188959) in the gear box (P/N 804-188500-613) and several broken gear teeth. The submitter suggested that "someone" may have put the wrong type of gear lubrication in the gear box. Given the number of operating hours, it is possible that a combination of wear and metal fatigue contributed to this failure.

Part total time 13,524 hours.

Beech; Model C23; Sundowner; Aileron Control System Defect; ATA 5751

During an annual inspection, the technician found a defect with the aileron control system.

The technician discovered a cracked bracket (P/N 169-130005-16) at the right aileron control arm attachment point. The submitter did not give a cause for this defect.

Part total time-3,178 hours.

Beech; Model C55; Baron; Landing Gear Anomaly; ATA 3260

During a landing approach, the pilot selected the landing gear switch to the "down-and-locked" position. The landing gear failed to extend normally. The pilot extended the landing gear manually and made a safe landing.

An investigation disclosed the landing gear selector switch (P/N MS25125E3) would not complete the electrical circuit for landing gear extension. He removed the switch and found it extremely dirty and corroded. He then cleaned and reinstalled the switch. When the technician performed a gear operational test, the gear operated properly through all parameters. Due to the corrosion damage, the technician removed the old switch and replaced it with a new unit. During the subsequent gear operational check, the unit performed satisfactorily.

The submitter recommends giving this unit a thorough cleaning and inspection at regular intervals.

Part total time not reported.

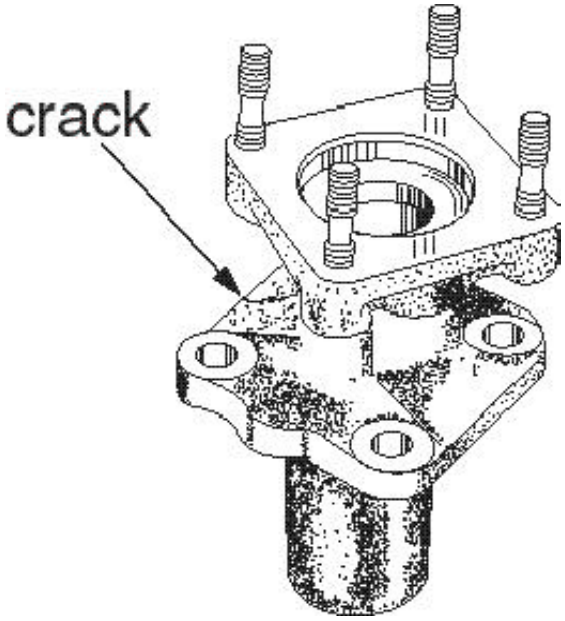
Beech; Model 65; Queen Air; Hydraulic System Damage; ATA 2910

This aircraft had Textron Lycoming Model IO-720 engines installed in accordance with a Supplemental Type Certificate.

During an engine operational check, the technician found an oil leak at the rear of the engine and a crack in the hydraulic pump adapter flange (P/N LW-12540). (Refer to the following illustration.)

The submitter did not offer a cause for this defect; however, he recommended that the manufacturer redesign the adapter flange to provide a more substantial structure. The submitter stated he has experienced several other similar failures.

Part total time not reported.



Beech; Model B100; King Air; Wing Attachment Defect; ATA 5720

While complying with the manufacturer's requirement for a 5-year wingbolt inspection, the technician discovered collateral damage on the wing attachment hardware.

Two wing attachment fittings were damaged. The damage was caused by improper installation of the right lower forward and left lower forward wing attachment hardware. The washers were installed backward on the bolts which deformed the wing fittings. The aircraft manufacturer provided technical support and "tooling" so that the technician could resurface the fittings. This repair is costly and presents a very serious compromise of structural integrity.

The submitter cautions maintenance personnel to use the appropriate technical data when installing the wing attachment hardware.

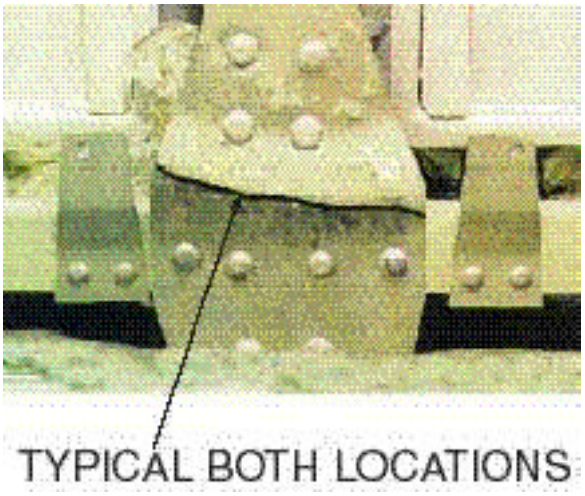
Part total time not reported.

Beech; Model 200; Super King Air; Defective Fuselage Structure; ATA 5311

During a scheduled inspection, the technician found two fuselage frame doublers broken at fuselage stations (FS) 226 and 246 at water line (WL) 117. (Refer to the following illustration.)

The broken doublers were "puckered" parallel to the break. These doublers are an integral part of the aircraft pressure vessel and deserve one's full attention during inspections and maintenance.

Part total time-9,230 hours.



Beech; Model 300; Super King Air; Windshield Failure; ATA 5610

During flight, the pilot's windshield (P/N PPG 101-384025-17) inner pane shattered.

The failure occurred when the aircraft was at flight level (FL) 330, the outside air temperature was -41 degrees centigrade, the cabin differential pressure was approximately

6.5 pounds per square inch, and the windshield heat had been on for approximately 90 minutes.

The inner pane of the windshield sustained severe cracking, and particles dropped onto the glare shield prior to landing. The windshield was installed approximately 3 years prior to this occurrence. The submitter did not give a cause for this defect.

Part total time-564 hours.

Beech; Model 300; Super King Air; Elevator Trim Failure; ATA 2731

During flight at 6,000 feet, the pilot lost elevator trim control.

Maintenance personnel found the elevator trim servo cable (P/N NAS 312-16-0283) broken. The submitter suspects the cable or servo drum was flawed or damaged during installation. He recommends closely inspecting this area at every opportunity.

Part total time-91 hours.

Beech; Model 400A; Beechjet; Cabin Door Defect; ATA 5210

During a preflight inspection, the cabin door locking pin would not engage in the door handle.

The technician discovered that the bushing backed out of the bearing plate (P/N 45A30159-1). This kept the locking pin (P/N 45A30181-9) from moving in far enough to lock the handle. The technician placed the bushing into the proper position and "staked" it to prevent future movement. Previously, the bushing was not "staked."

Part total time-773 hours.

BELLANCA

Bellanca; Model 17-30A; Super Viking; Runway Departure Accidents; ATA 3251

Information for this article was supplied by an Aviation Safety Inspector, Airworthiness working in the Flight Standards District Office (FSDO) located in Houston, Texas.

It seems there may be a ground directional controllability problem with this, and possibly other, aircraft. The nose landing gear wheel may remain at an angle (uncentered) during flight. When the nosewheel contacted the runway, the nose landing gear failed, the aircraft lost directional control, and the aircraft departed the runway. Several incidents and accidents have resulted from this anomaly.

Airworthiness Directive (AD) 96-18-07 and the manufacturer's Service Letter (SL) B-107 address nose landing gear failure and loss of ground directional control. After complying with the AD requirements, owners, operators, and maintenance personnel should be aware of other operating characteristics.

If the pilot does not apply positive pressure to both rudder pedals during the landing process, the nosewheel may remain at the position relative to the last rudder input. This point can be demonstrated by placing the aircraft on jacks, then without positive pressure on the rudder pedals, the nosewheel can be turned freely by hand to any position within the travel limits without movement of the rudder pedals. With positive, equal, pressure on both rudder pedals, the nosewheel should be centered.

CANADAIR

Canadair; Model Cl65; In-Flight Door Warning Anomalies; ATA 5200

The Federal Aviation Administration (FAA) took information for the following article from a National Aeronautics and Space Administration (NASA) report.

Two reports were received concerning separate in-flight door warning incidents. In one incident, the flightcrew declared an emergency and returned to the departure airport. The flightcrew elected not to follow the emergency checklist procedures due to the "history of false door warnings." This concerned the captain because of the possibility of passenger and flightcrew injuries associated with rapid depressurization. The flight attendant confirmed the door alignment markings appeared to be "all aligned."

During the second incident, the captain elected to continue to the destination airport after receiving a master caution warning that read "PAX DR LATCH." Maintenance personnel informed the captain that "the door latch indicator gives false indications during cold weather operations."

The Federal Aviation Administration (FAA) Service Difficulty Program (SDP) data base contains 75 additional reports concerning door warning indications on Canadair, CL600-series aircraft. Most of these reports culminated in unscheduled landings. Additionally, the FAA SDP data base contains 189 reported discrepancies related to doors.

When the flightcrew disregards warning indications, a serious compromise of safety exists. In the case of this defect, there may be a systemic indication problem; however, how do we discern between false and real warnings? This problem needs, and deserves, to be permanently solved to safeguard the flying public. All operators, as well as the manufacturer, should take appropriate action to resolve this defect as soon as possible.

Aircraft total time not reported.

CESSNA

Cessna; Model 152; Horizontal Stabilizer Structural Defects; ATA 5511

While conducting a scheduled inspection, the technician found severe structural defects at the trailing edge of the horizontal stabilizer.

After a thorough investigation, it was apparent that a previous and inappropriate repair had been accomplished by an unknown person. New skins had been installed on the horizontal stabilizer over the existing spars (P/N 0432001-56) and reinforcement members (P/N 0432001-15). The rivets used to secure the skins did not align with the existing holes in the spars and reinforcement members and the installer drilled new holes. This left approximately 75 extra unfilled holes in the attachment structure. Needless to say, this caused a severe degradation of the structural integrity of the entire horizontal stabilizer.

The submitter stated, "A degree of professionalism and attention to details could have prevented this damage."

Part total time not reported.

Cessna; Model 152 (C152); Cessna 152; Unsecured Throttle Handle; ATA 7603

While landing his brand new airplane, the pilot pulled back on the throttle knob and the knob and shaft disconnected at the cable and came off in his hand. The engine RPM was fixed at 1,000, the pilot notified the tower, and made a safe landing.

This report alerts us of the need for extra inspection and preflight vigilance to offset poor quality control at the factory.

Part total time-unknown.

Cessna; Model 172R; Skyhawk; Wheel Brake Failure; ATA 3242

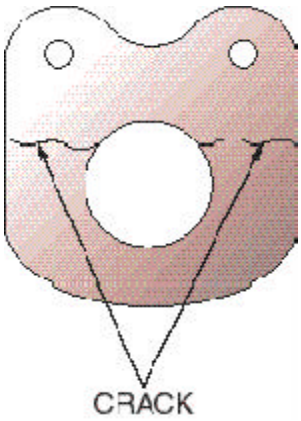
During the landing rollout, the pilot had to constantly pump the right wheel brake to maintain pressure.

An investigation revealed the right brake caliper (Cleveland P/N C163030-011) was cracked in two places. (Refer to the following illustration.)

The submitter speculated faulty material, improper heat treatment, excessive brake heating, and/or the effects of side loads imposed on the landing gear may have caused the defect.

It would be prudent to inspect the brake calipers closely at every opportunity.

Part total time-226 hours.



Cessna; Model TU206G; Turbo Stationair; Heat Exchanger Crack; ATA 2120

The heat exchanger used in this aircraft was installed in accordance with Supplemental Type Certificate (STC) SA5010 and SE5009NM. The heat exchanger employs heat transfer studs which are welded to the outer surface. These heat transfer studs warm the air for cabin heat.

During an inspection, the technician discovered that two of the studs had broken loose. The heat exchanger body, to which the studs were welded, cracked at the base of the studs and eventually broke. These cracks allowed engine exhaust gases to enter the cabin which created a very hazardous condition for the aircraft occupants.

Part total time-296 hours.

Cessna; Model T210N (C210); Centurion; Loose Bolts; ATA 3230

While performing an annual inspection, the technician discovered the bolts (NAS565-33) holding the main gear downlock support (P/N's 1241618-5 and -6) in place were loose.

The submitter stated this is the second occurrence of the same bolts loosening. The last time the bolts loosened was approximately 100 hours and 145 landings ago. At that time, the technician applied "Lock-Tite" to the installation washers; however, the bolts still loosened, and the saddle and shim shifted out of position.

The submitter recommends the manufacturer install bolts with fiber-lock threads. It is difficult to inspect this area; however, it deserves one's close attention.

Part total time-3,977 hours.

Cessna; Model 310 (C310); Cessna 310; Elevator Bellcrank; ATA 2730

During an annual inspection, the technician noticed elongated bolt holes on the elevator bellcrank support toward the forward direction. This indicates the linking cables exerted excessive tension on the bolt holes.

The submitter recommends these parts receive careful inspection during 100-hour inspections.

Part total time not provided.

Cessna; Model 310Q (C310); Cessna 310; Restricted Air Flow; ATA 7160

During takeoff, the left engine lost power. To secure the engine, the pilot retarded the throttle and the engine power returned to normal.

An investigation revealed a portion of a 4.5-inch duct from the leading edge of the wing deteriorated and one ply blocked the induction system's airflow. This airflow blockage resulted in an extremely rich mixture that resulted in the loss of engine power.

Part total time-2,296 hours.

Cessna; Model 402C; Businessliner; Cockpit Fuel Leak; ATA 2820

During a flight, the crew detected the odor of fuel. The crew checked the cockpit and found a puddle of fuel on the floor by the copilot's station. The pilot made a safe, precautionary landing.

The fuel evaporated before the technician inspected the aircraft; however, he found a stain and detected the odor of fuel. He determined a loose cap (P/N AN929-2) on the fuel flow bleeder line assembly caused the leak. After tightening the cap, an operational test confirmed there were no leaks. The submitter did not mention why or how the cap became loose. However, the low operating time for this part led technicians to suspect it was not properly tightened during installation.

Fuel leaks of any kind present a serious degradation of safety and a hazard to the aircraft occupants. All concerned should be especially vigilant and give full attention to details when performing maintenance on fuel systems. A fire and/or explosion in the cabin or cockpit usually results in a fatal accident.

Part total time-78 hours.

Cessna; Model 500 (C500); Citation I; Drag Chute; ATA 5300

The following article was provided by the NTSB, Aviation Engineering Division (AS-40) located in Washington, DC. *(The article is printed as published by the NTSB.)*

BACKGROUND: This safety alert is the result of an accident involving a Citation 500. The airplane was destroyed by fire after it collided with terrain following an emergency landing immediately after takeoff. The drag chute (P/N R-12464) departed the aircraft after the initial deployment shock was felt. The airplane went off the runway, continued down the sloping terrain, and collided with a power pole. The outer strands of the drag chute riser had chafed on a lightening hole, thereby, reducing its tensile strength. The lightening hole had no protective nylon grommet installed on the hole's circumference. Cessna documents show that a nylon plastic edging (P/N MS21266-2N) should have been installed in the lightening hole.

PROBABLE CAUSE: Maintenance personnel had not adequately checked the drag chute riser or inspected the lightening hole.

RECOMMENDATION: Operators of Citation 500, 501, 550, and 551 airplanes equipped with drag chutes should ensure that a nylon grommet is installed in the lightening hole and that the riser is in good condition.

Part total time not provided.

Cessna; Model 650; Citation; Anti-Ice Filter Seizure; ATA 3000

During a scheduled inspection, the technician discovered both of the anti-ice system valve (Whittaker P/N 725673) filter caps were seized.

The filter caps (P/N 738081) were very difficult to remove. When the filter caps were removed, the threads were found galled and slightly corroded. The submitter recommended

cleaning and using an appropriate anti-seize compound on the cap threads each time they are removed.

Part total time not reported.

DeHAVILLAND

DeHavilland; Model DHC6-300; Twin Otter; Elevator Structural Defects; ATA 5520

During a scheduled inspection, the technician found loose fasteners on the right elevator.

The right elevator hinge plate (P/N C6TPM1022-29) rivets were working and loose in the stabilizer end rib. After the technician removed the right elevator to complete repairs, he discovered that other rivets had pulled through the elevator bottom outboard skin and the trailing edge skin. The submitter did not offer a cause for this defect.

It is wise to give this area your full attention at every opportunity.

Part total time not reported.

DIAMOND

Diamond; Model DA20-C1; Engine Starter Drive Failure; ATA 8510

The pilot reported noticing a significant drop in engine oil pressure during flight. (This aircraft had a Teledyne Continental Model IO240-B engine installed.)

An investigation revealed the oil filter contained several large pieces of steel and aluminum. The technician traced the source of the metal to the starter drive gear and the accessory drive gears. All of these gears were missing teeth and severely damaged. Since the operating time was relatively short, the submitter believes one of the drive gears was defective prior to installation.

Metal contamination in the oil system destroyed this engine. The submitter recommends that maintenance personnel conduct repetitive visual inspections on the starter drive assembly.

Part total time-16 hours.

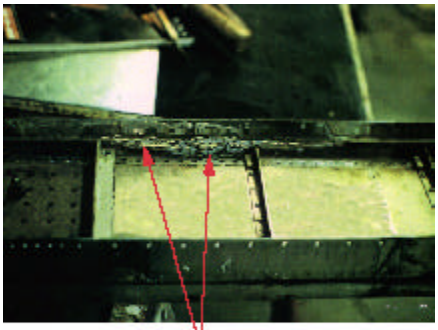
ERCOUPE

Ercoupe; Model 415-E; Spar Cap Corrosion; ATA 5341

During an annual inspection, the technician removed the right wing and discovered severe corrosion on the center section beam assembly (P/N 415-13102) and the lower wing spar cap. Intergranular corrosion consumed approximately 5 inches of the spar cap. (Refer to the following illustration.)

This area is not accessible for inspection without removing the wing. The submitter recommends that the manufacturer design an inspection panel located on the bottom skin to allow periodic inspection of this area.

Aircraft total time-2,361 hours.



PIPER

Piper; PA23-250 (PA27); Aztec; Blown Actuator Seal; ATA 3233

While in flight, when the landing gear handle was selected down, the pilot did not get a green light, indicating that the gear was safe and in the “down-and-locked” position. The

pilot made several recycling attempts, but he was unable to get a “gear-safe” light. He tried to “hand pump” the gear down, but he was not sucessful. Then he tried to “hand pump” while sustaining negative gravitational forces, and the green “safe light” illuminated.

After a safe landing, a technician inspected the aircraft and discovered the left main landing gear’s retraction cylinder (P/N 35030-02) had blown a seal (P/N 752-726) and allowed the system’s fluid to leak out under pressure.

Part total time unknown.

Piper; Model PA24-260; Comanche; Loose Stabilator Fasteners; ATA 5320

While complying with the recurring-inspection requirements of Airworthiness Directive (AD) 94-13-10, the technician heard a “creaking” noise.

It appeared the noise came from the angles securing the stabilator torque tube bearing support fittings. The technician found loose rivets between fuselage stations 254 and 257 where the angles (P/N’s 20500-27, -28, and -29) attach to the fuselage. He found wear marks on these angles, as well as, on the aft bulkhead (P/N 20479-15).

This report highlights the importance of AD recurring-inspection requirements.

Part total time-4,725 hours.

Piper; Model PA28-161; Warrior; Propeller Spinner Crack; ATA 6113

During a scheduled inspection, the technician found a crack on the propeller spinner bulkhead.

The crack radiated from a spinner mount screw nut plate rivet, traveled outboard to the edge of the spinner bulkhead (P/N 87325-010), and inboard toward the propeller mount bolt holes. One spinner screw washer exhibited severe deterioration and may have caused the crack. Due to the severity of the crack, the technician replaced the bulkhead.

Part total time-9,277 hours.

Piper; PA28-181 (P28A); Archer II; Loose Stabilizer Balance Weight; ATA 5510

During the annual inspection, the technician discovered the balance weight assembly (P/N 99803-03) was loose at its attach point on the actuator tube (P/N 69624-02).

After the technician removed the balance weight from the tube, he noticed the attaching bolt hole was elongated. There is only one bolt through the balance weight assembly and the tube. The bolt was still tight; however, the balance weight assembly did not fit tightly in the tube. The unsupported weight eventually elongated the hole.

The submitter states this area deserves special attention especially on high time aircraft.

Part total time-2,249 hours.

Piper; Model PA31-350 (PA31); Chieftain; Fuel Leak; ATA 2140

During a 100-hour inspection, the technician discovered fuel leaking from the forward heater compartment.

An investigation revealed the fuel came from the cabin heater fuel pressure regulator (P/N 23D04-7-5) body. The technician removed the pressure regulator and determined the leak source to be the parting surface at the top of the regulator body.

The submitter stated that he replaced this unit previously due to the same defect. Since a fuel leak in this area may create a very hazardous condition, the submitter recommends taking every precaution to eliminate this problem.

Part total time-219 hours.

Piper; Model PA31-350 (PA31); Chieftain; Misaligned Elevators; ATA 5521

During an inspection, the left and right elevator appeared to be misaligned.

The technician discovered a twist had been erroneously built into the left elevator during a previous repair that was conducted under the provisions of a Piper inspection modification. Upon disassembly, the technician discovered the elevator's main spar had a broken tip at the attach point.

The submitter stated, "Be aware when signing-off your work that someone else's poor workmanship is not carried into your sign-off."

Part total time-6,617 hours.

Piper; PA31-350 (PA31); Chieftain; Failed Vacuum Pump; ATA 3710

The aircraft's left vacuum pump (P/N 441CC-7) failed. The vacuum pump's air intake is located at the bottom of the nacelle, aft of the firewall, and just outboard of the nacelle's centerline.

This location is directly aft and in line with the engine crankcase breather. This allows the buildup of oil vapor on the B3-5-1 garter filter. This buildup combined with any engine oil leaks may allow enough oil to reach the pump and cause failure. When oil leaks from the engine, the garter filter must be inspected and changed often. The H-6000 hose at the pump inlet should be regularly checked for contamination.

Part total time-584 hours.

Piper; Model PA32R-300; Cherokee Lance; Defective Landing Gear Extension System; ATA 3230

During an annual inspection, the technician tested the landing gear emergency-extension system. The right main gear came down very violently, but the left main and nose gear only extended partially.

An investigation revealed the restrictor (P/N 67600-00) was erroneously installed in the return line for the nose and left main gear. The restrictor should have been installed in the return line for the right main gear. This error allowed the right main gear to operate without restriction and doubled the restriction of the nose and left main gear. After the technician installed the restrictor in the proper position, the emergency-extension system operated satisfactorily.

The submitter suggests testing the emergency-extension system during 100-hour and annual inspections.

Part total time-2,965 hours.

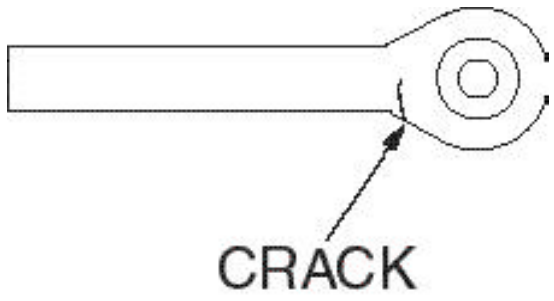
Piper; Model PA32R-300; Cherokee Lance; Nose Landing Gear Failure; ATA 3230

The pilot reported that while in flight, the nose landing gear extended without command.

The technician discovered the rod-end bearing (P/N 452-729) installed on the nose gear actuator cylinder (P/N 35797-02) broke and allowed the nose gear to free fall to the "down-and-locked" position. The broken rod-end displayed evidence of a pre-existing crack. (Refer to the following illustration.)

To detect a crack at this location, disassemble the rod-end from the nose gear downlock mechanism. The submitter speculated metal fatigue caused this defect, and recommends inspecting the rod-end bearing frequently.

Part total time not reported.



Piper; PA44-180 (PA44); Seminole; Jammed Flight Control; ATA 2700

While conducting a preflight inspection, the pilot noticed the elevator controls were jammed in the nosedown position.

The technician conducted an investigation and discovered a large screwdriver was wedged in the flight controls under the cockpit floorboard. The technician performed considerable disassembly to remove the screwdriver.

The submitter suspects the screwdriver was left in the aircraft during the last 100-hour inspection. Over time, the screwdriver migrated and finally caused this problem. The submitter recommends keeping the tool-inventory checklist available at the end of each job.

Part total time-2,909 hours.

AGRICULTURAL AIRCRAFT

PIPER

Piper; Model PA36-285; Pawnee Brave; Wing Spar Structural Damage; ATA 5711

During a scheduled inspection, the technician found a stress fracture on the left wing aft spar.

The fracture was approximately 10 inches outboard of the spar-to-fuselage attachment point. The submitter stated this is the second fracture in like aircraft he has experienced within a short period of time. This area is very difficult to properly inspect; however, it warrants the extra effort and attention.

Part total time-5,308 hours.

HELICOPTERS

ENSTROM

Enstrom; Model F28C; Tail Rotor Control Failure; ATA 6720

The pilot reported losing control of the tail rotor during flight. The pilot made a safe landing and summoned maintenance personnel.

An investigation revealed a broken left tail rotor control cable (P/N 28-16351-1) approximately 12 inches forward of the tail rotor. The submitter did not find evidence of rubbing or chafing and did not determine the cause of the problem. The submitter recommends close examination of the tail rotor control cables during inspections.

Part total time-1,492 hours.

HUGHES

Hughes; Model 269C; Alternator Failure; ATA 2410

The pilot reported that the alternator failed during flight. The pilot made a safe, precautionary landing.

An investigation disclosed broken alternator cooling fins. The technician speculated the broken cooling fins caused an imbalance resulting in a severe vibration. The alternator bracket attachment bolts were sheared and the alternator was not attached to the engine.

The submitter suspects the cooling fins failed due to metal fatigue. The submitter recommends all operators inspect the cooling fins for cracks and/or damage every 100 hours of operation.

Part total time-71 hours.

McDONNELL DOUGLAS

McDonnell Douglas; Model 600N; Main Rotor Transmission Oil Leak; ATA 6320

Just prior to landing, the pilot noticed the main rotor transmission “low oil pressure” light illuminated. The pilot made a safe landing.

The technician discovered that oil from the main rotor transmission saturated the engine compartment. The oil line (P/N 369D25712-13) chafed against a rigid engine air line and caused the leak.

The submitter stated this is his third finding of chafing damage in the same area of the oil line. If the main rotor transmission operated much longer without oil supply, a catastrophic failure may have resulted. This area deserves close attention during inspections and maintenance.

Part total time-348 hours.

McDonnell Douglas; Model 600N; Defective Bellcrank Assembly; ATA 6710

During a scheduled inspection of the flight control system, the technician discovered excessive free play in the forward main rotor control rods and the bellcrank.

Further inspection disclosed that a loose bearing at the lower pivot point caused the free play in the bellcrank assembly (P/N 600N7605-1). The submitter stated the bearing nearly fell out of the bellcrank. (Refer to the following illustration.) The submitter stated this is the third occurrence he has experienced with a loose bellcrank bearing. All three of the occurrences occurred on very low time helicopters.

Part total times- 301, 201, and 200 hours.

ROBINSON

Robinson; Model R22; Beta II; In-Flight Vibration; ATA 6420

During flight, the pilot experienced a severe vibration coming from the rear of the helicopter. The pilot made a safe landing without damaging the helicopter.

During an inspection, the technician determined a broken bolt in the tail rotor hub assembly caused the vibration. The available evidence indicated the bolt failed in shear due to corrosion which developed into stress risers. In this case, the tail rotor assembly had been in operation approximately 720 hours since the last inspection.

The submitter recommended thorough inspections each 100-hour of operations.

Part total time-889 hours.

Robinson; Model R44; Astro; Directional Gyro Failure; ATA 3420

The pilot reported the directional gyro failed during flight.

The technician discovered the circuit breaker opened and would not reset. Further examination disclosed that a wire chafed

against the upper console assembly. Due to the resulting short circuit, the circuit breaker opened. The technician repaired the wire, rerouted the wire bundle, and secured the wire to provide adequate clearance.

The submitter recommends inspecting this area for proper clearance and chafing damage.

Part total time-402 hours.

AMATEUR, EXPERIMENTAL, AND SPORT AIRCRAFT

AVID

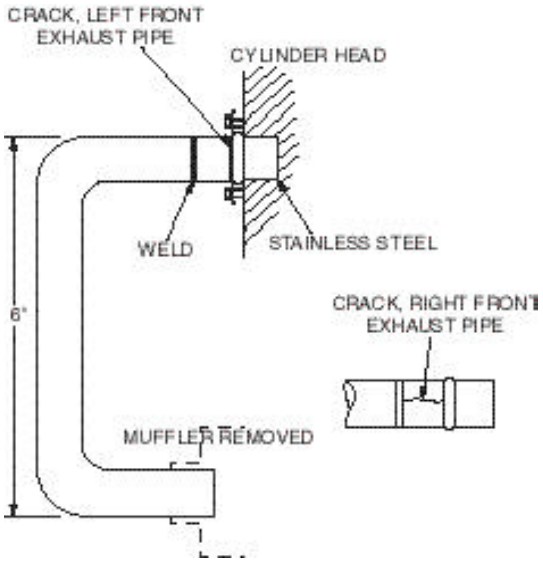
Avid; Model Catalina; Engine Exhaust System Failure; ATA 7800

This aircraft used a Rotax, Model 912 engine and a Warp Drive propeller. After approximately 1 hour of flight time, the pilot heard a loud "bang" and felt a severe vibration followed by engine failure. During an emergency landing, the two passengers escaped without injury; however, the aircraft sustained substantial damage.

An examination of the wreckage revealed that two of the three propeller blades broke approximately 10 inches from the center of the hub. Further inspection disclosed a broken front left engine exhaust pipe. The technician presumed the exhaust pipe damaged the propeller blades when it exited the aircraft. The available evidence indicated a crack developed around the circumference of the pipe at the point where it entered the engine cylinder head. Another crack was found on the right front exhaust pipe. (Refer to the following illustration.)

The submitter stated the remaining section of the exhaust pipe showed evidence of "fatigue cracking." The builder modified the exhaust system and flew the aircraft without the mufflers. The process of welding stainless steel to mild steel raises serious questions concerning structural integrity. Welding stainless steel to mild steel requires proper adherence to a strict technical process.

Approximate part operating time-80 hours.



KITFOX

Kitfox; Model Kitfox III; Landing Gear Failure; ATA 3230

This aircraft employed an Aero Marine, Model 69001, amphibious float landing gear system. During a hard surface landing, the left landing gear collapsed. The aircraft sustained minor damage on the float keel and the nose tire.

An investigation disclosed the left landing gear rotation tube (P/N 480-5058-102) bent and collapsed. Evidently, the stop bracket rotated past the stop bolt allowing the gear to unlock. The submitter experienced two other similar

failures on this same aircraft. Since the stop bracket is made of stainless steel, he suspects it may be too soft to sustain a hard landing.

Part total time-.5 hours.

REVOLUTION

Revolution; Model 500; Mini; Discrepancy Reports; ATA 6220 and 6410

An amateur kit builder submitted three reports concerning deficiencies in the manufacturer-supplied parts. These deficiencies are listed; *however, the FAA has not verified the reports*.

The main rotor head tolerances are excessively loose, making it impossible to correctly determine the coning angle. The blade grip bolts allow the head coning angle to vary from +.02 to -1 degrees. Two degrees is the normal, causing a minimum of 50 percent error.

The kit manufacturer's manual, supplied with the kit, indicates the tail rotor precone angle should be 2 degrees. The blades (P/N BA-29) supplied were at .25 and 1.1 degrees. The submitter ordered an additional set of tail rotor blades; however, they did not meet the specification. Shimming was necessary to attain the proper angle.

The swashplate bearing snapring groove was machined .125 inch below the top of the installed bearing. Therefore, the bearing retainer snapring (P/N 0023) could not be installed and was held by the "press fit." To install the snapring, it was necessary to rework (machine) the snapring groove.

Helicopter total time-0 hours.

POWERPLANTS AND PROPELLERS

PRATT & WHITNEY

Pratt & Whitney; Model PT6A-41; Engine Failure; ATA 7230

This engine was installed on a Beech Model 200 aircraft. The pilot reported the right engine failed shortly after takeoff.

The technician removed the engine and sent it to the manufacturer for analysis. The manufacturer attributed the problem to degradation and failure of the first stage compressor stator. The manufacturer stated high cycle fatigue caused the compressor stator airfoil damage.

Part total time-7,403 hours. Total time since overhaul-3,009 hours.

ACCESSORIES

ENGINE CONTROLS

The Federal Aviation Administration (FAA) Aircraft Certification Office located in Wichita, Kansas, furnished information for the following article.

The FAA recently investigated three single-engine aircraft accidents (one involving a fatality) that were attributed to engine control failure. These failures were due, in part, to lack of maintenance and/or improper hardware installation at the attachment to the

carburetor/fuel control. One of the accidents occurred within 1 operating hour after an annual inspection.

The FAA issued Airworthiness Directives (AD's) 85-03-01 and 86-24-07 which deal with this subject. These AD's require modification and inspection of engine controls.

All maintenance and inspection personnel are advised to be vigilant for defective engine controls during inspections and maintenance.

Total time not applicable.

AIR NOTES

AIRWORTHINESS DIRECTIVES (AD's) ISSUED IN MAY 1999

99-09-07; S.N. Centrair; Glider: 101, 101A, 101P, and 101AP

99-09-08; Avions Pierre Robin; R2160

99-09-09; Schleicher, Alexander; Sailplane: ASH-26E

99-09-10; Raytheon (Beech); C90A, B200, B200C, B200T, B200CT, 300, B300, B300C, A200CT (C-12D), A200CT (C-12F), A200CT (RC-12H), A200CT (RC-12K), A200CT (RC-12N), A200CT (RC-12P), B200C (C-12F), B200C (UC-12F), B200CT (RC-12F), B200C (UC-12M), B200C (RC-12M), and B200C (C-12R)

99-09-15; Raytheon (Beech); A36, B36TC, 58, 58A, C90A, B200, B300, and 1900D

99-09-16; Eurocopter France; Rotorcraft: SE 3130, SE 313B, SA 3180, SA 318B, and SA 318C

99-09-20; Bell Helicopter; Rotorcraft: 222, 222B, and 222U

99-10-01; Avions Pierre Robin; R2160

99-10-02; Avions Pierre Robin; R2160

99-10-06; Raytheon (Beech); Beech 2000

99-10-07; PL; Raytheon (Beech); 65-90, 65-A90, 65-A90-1, 65-A90-2, 65-A90-3, 65-A90-4, B90, C90, C90A, E90, H90, and F90

99-06-17; Pilatus; PC-12 and PC-12/45

99-10-07; Raytheon (Beech); 65-90, 65-A90, 65-A90-1, 65-A90-2, 65-A90-3, 65-A90-4, B90, C90, C90A, E90, H90, and F90

99-10-15; Eurocopter France; Rotorcraft: AS332L2

99-11-02; Pratt & Whitney; Engine: R-1340 Series Reciprocating, Wasp S1H1, S1H1-G, S1H2, S1H4, S1H5-G, S3H2, R-1340-61, Wasp S3H1-G, R-1340-59, and Wasp S3H1

99-11-03; Eurocopter France; Rotorcraft: SA341G and SA342J

99-11-04; PL; Sikorsky; Rotorcraft: S-76A

99-11-06; Indust. Aero. E Mecc.; Piaggio P-180

99-11-07; Mooney; M20R

99-11-10; Eurocopter France; Rotorcraft: AS332L2

99-11-11; Eurocopter France; Rotorcraft: SA-365N, N1, AS-365N2, N3, and SA-366G1

99-11-13; Cessna; 402C

99-12-01; PL; Eurocopter Deutschland; Rotorcraft: EC135

99-12-02; PL; Raytheon (Beech); Beech 45 (YT-34), A45 (T-34A, B-45), and D45 (T-34B)

SUSPECTED UNAPPROVED PARTS (SUP) SEMINAR

As announced in previous editions of the Alerts, the Designee Standardization Branch, AFS-640, is once again presenting the Suspected Unapproved Parts (SUP) seminar. A schedule of the seminars and information for requesting a SUP seminar in your area is listed in this article.

Seminar dates will be announced in the Alerts, the Designee Update newsletter, and on the Internet under FedWorld.gov. You may access the FedWorld BBS directly at (703) 321-3339. You may access the Alerts through the Internet, using the Regulatory Support Division, AFS-600, "HomePage" at the following address.

http://www.mmac.jccbi.gov/afs/afs600

The seminar will discuss the following:

1. Introduction to the policy of the Suspected Unapproved Parts Program Office, AVR-20.
2. What is an approved part/unapproved part?
3. How can approved parts be produced?
4. What is a suspected unapproved part?
5. How is a suspected unapproved part reported in accordance with FAA Order 8120.10A, Suspected Unapproved Parts Program, and utilizing FAA Form 8120-11, Suspected Unapproved Parts Notification?
6. How do you determine the status of parts?
7. What is the procurement process?
8. How do you use the Internet and FedWorld to find a list of unapproved parts?

The cost of this 1-day, 8-hour seminar is $60. The seminar may be used for the Inspection Authorization (IA) renewal training requirement specified in Title 14 of the Code of Federal Regulations (14 CFR) part 65, section 65.93(a)(4). Beginning in October 1999, the cost of these seminars will increase to $65.

The seminar is open to the aviation industry. Anyone wishing to attend may telephone (405) 954-0138. Payment is required in advance by using VISA, MasterCard, or a check. **When scheduling attendance, please reference the seminar number.**

SCHEDULE FOR
SUSPECTED UNAPPROVED PARTS (SUP)
SEMINARS

Seminar No.	1999	Location
759928	Jul 14	Portland, ME
759921	Aug 11	San Diego, CA
759922	Aug 12	San Diego, CA
759923	Aug 25	Denver, CO
759924	Aug 26	Denver, CO
759925	Sep 15	Little Rock, AR
759926	Sep 16	Little Rock, AR

If you require an ADDITIONAL SUP seminar, please write to: FAA, ATTN: AFS-640, P.O. Box 25082, Oklahoma City, OK 73125. Depending on the availability of AFS-640 personnel, the requests for additional SUP seminars may be authorized. The registration process is the same as that previously discussed in this article. If you have specific questions regarding an ADDITIONAL SUP seminar, please contact Elmer Hunter at (916) 773-2927.

CHANGES TO THIS PUBLICATION

We have created a new Internet web site which includes an electronic version of FAA Form 8010-4, Malfunction or Defect (M or D) Report. You may use the electronic version to send M or D reports to us. The web site also includes a search function for older copies of the Alerts. The address for this web site is:

http://www.mmac.jccbi.gov/alerts/

SUBSCRIPTION FORM

Many of our readers voiced their concern when, due to a budget reduction, it was necessary to stop printing and distributing paper copies free of charge.

The Government Printing Office (GPO) agreed to print and distribute the Alerts. However, there will be a 1-year subscription charge for this service. The charge will be $25 per year for domestic mailings and $31.25 per year for foreign mailings.

The mailing list for the Alerts is current, and we sent a subscription form to all past recipients. However, if you did not receive a subscription form, we have included one in this publication.

IF YOU WANT TO CONTACT US

If you want to contact the staff of this publication we welcome your comments, suggestions, and questions. Also, you may use any of the following means of communication to submit reports concerning aviation-related occurrences.

Editors: Phil Lomax (405) 954-6487
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Oklahoma City, OK 73125-5029

Internet E-mail address:
ga-alerts@mmacmail.jccbi.gov

You can access current and back issues of this publication from the internet at:
http://www.mmac.jccbi.gov/alerts

This web site also has view, search, E-Mail, and M or D submit functions.

The “Fedworld” web site at:
http://www.fedworld.gov/pub/faa-asi/faa-asi.htm

The “Fedworld” web site has approximately 5 years of back issues listed. The files are titled using eight characters. The first three characters are ALT. The second three characters indicate the month (Jan, Feb, etc.). The last two characters indicate the year (98, 99, etc.). The more recent files are in Adobe Acrobat (PDF) format and can be viewed and downloaded. To download individual monthly files, point the mouse pointer at the desired file, and click the right mouse button. This will produce a drop-down menu. Select “save target as” from the drop-down menu. Select a location for the downloaded files to reside. You can print the downloaded file(s). NOTE: The Service Difficulty Report (SDR) files are at the end of the ALT files.

OMB No. 2120-0003

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

MALFUNCTION OR DEFECT REPORT

OPER. Certificate No.
ATA Code
1. A/C Reg. No. N-

Enter pertinent data:	MANUFACTURER	MODEL/SERIES	SERIAL NUMBER
2. AIRCRAFT			
3. POWERPLANT			
4. PROPELLER			

5. SPECIFIC PART (of component) CAUSING TROUBLE

Part Name	MFG. Model or Part No.	Serial No.	Part/Defect Location

6. APPLIANCE/COMPONENT (*Item installed on the part*)

Comp/Appl Name	Manufacturer	Model or Part No.	Serial Number

Part TT	Part TSO	Part Condition	7. Date Sub.

8. Comments (*Describe the malfunction or defect and the circumstances under which it occurred. State probable cause and recommended actions to prevent recurrence.*)

Optional Information:

Check a box below, if this report is related to an aircraft:

☐ Accident; Date _____ ☐ Incident; Date _____

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FAR	
AIR TAXI	TELEPHONE NUMBER: ( ) —
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ADVISORY CIRCULAR 43-16A, AVIATION MAINTENANCE ALERTS

This publication is once again available in printed form.

In the December issue of the Alerts, we informed readers of the decision to discontinue printing the Alerts. The decision was a difficult one to make, and we have heard from many of our readers. There is good news on the horizon.

The Superintendent of Documents, Government Printing Office (GPO) has agreed to distribute the Alerts for a subscription fee. The subscription charge will be $25 yearly for domestic mailings and $31.25 for foreign mailings.

To receive a monthly copy of the Alerts, please fill out the attached form and send it to the address indicated below with your payment.

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